

**ABSTRACT OF THE INVENTION**

The invention provides an improved *Mycoplasma hyopneumoniae* bacterin vaccine composition, which advantageously provides immunity from infection after a single administration. The composition comprises an inactivated *Mycoplasma hyopneumoniae* bacterin and an adjuvant mixture, which, in combination, provide immunity from *Mycoplasma hyopneumoniae* infection after a single administration, and elicit an immune response specific to *Mycoplasma hyopneumoniae* bacterin and including cell-mediated immunity and local (secretory IgA) immunity. In a preferred embodiment, the adjuvant mixture comprises an acrylic acid polymer, most preferably Carbopearl CARBOPOL, and a mixture of a metabolizable oil such as one or more unsaturated terpene hydrocarbons, preferably squalene or squalane, and a polyoxyethylene-polypropylene block copolymer such as Pluronic PLURONIC®. The vaccine composition may optionally include a preservative, preferably thimerosol and/or EDTA.